Zining (Emma) Wang

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DSP engineer with foundation in audio software programming and sound design, who delivers creative solutions on technical challenges. Obtains pressure management skill to be capable of taking responsibilities.

SKILLS

Technical Skills

- **Programming:** Audio plugin design using C/C++ in JUCE; Program delay/tremolo/reverb audio effects on SHARC module using C/C++ in CrossCore; Program synthesizer/drum machine plugin in MAX; Interactive sound design in SuperCollider; DSP effect programming in Faust; FFT/STFT spectral analysis in MATLAB;
- **Software:** Game audio integration in Wwise, recording and mixing in ProTools, sound design in Reaper
- **Hardware & Acoustics:** Analog circuit design, circular diffuser design, room acoustic measurement
- **Spoken Languages:** Fluent in Mandarin (Chinese)

Relevant Courses: Audio Software Design (C/C++), Audio for Games (Wwise), Audio DSP (MATLAB)

PROJECTS

Multi-Cycle Wavetable Synthesizer Audio Plug-In (C++)

- *Engineered a multi-cycle synthesis system that dynamically sequences and interpolates between samples and between user-defined waveform frames (Sine, Saw, Triangle, Square) in real-time.*
- *Implemented a custom voice struct to manage independent oscillator states and phase tracking.*
- *Implemented complex modulation DSP, including a Variable-State LFO and Frequency Modulation (FM) system with adjustable modulation index and ratio controls.*
- *Implemented guard point optimization to reduce artifacts during real time scanning.*
- *Designed UI by creating a custom header, enabling a drag-and-drop interface that dynamically updates the wavetable sequence vector in real-time.*

Real-time Audio Effect Processors (C++ / SHARC DSP) *Oct 2025*

- *Programmed and implemented a bundle of 6 digital audio effects in C++ using CrossCore Embedded Studio (e.g., reverb, auto Wah, delay, compressor, etc.)*
- *Implemented FFT and more than 3 types of time-domain processing (e.g., filtering, envelop detection,*
- *delay lines) to build header files*
- *Integrated programs to SHARC hardware and assigned various control parameters to module buttons*
- *and knobs*

Audio Synthesizer Plugin Design, Digital Instrument & Signal Processing System Design *May 2025*

- *Emulated timbres of sound healing instruments using envelop shaping and FM synthesis in Max*
- *Incorporated Jitter and FFT objects to given real-time visual feedback based on computer microphone input to enhance interactivity*

Wwise Sound Implementation, Game Audio Middleware Integration *May 2025*

- *Designed, created and integrated sound effects and music for all core game mechanics*
- *Utilized Wwise's State and Switch containers in all hierarchies to dynamically manage audio behaviors and sound cues according to game events and player status*
- *Executed the integration by importing generated SoundBank into the game "Cube"*

Spectral Audio Analysis & Windowing (MATLAB) *March 2025*

- *Compared three window transforms with zero padding to find the optimal spectral resolution*
- *Used FFT and peak detection to extract harmonic content of the input audio*

Phase Vocoder (MATLAB), STFT Pitch-shifting & Time-scaling *April 2025*

- *Achieved time-scaled audio through interpolation of STFT magnitudes, and resynthesized using OLA/WOLA methods.*

- *Analyzed reconstruction artifacts by comparing OLA and WOLA methods*

Indie Game Design (C++) *Dec 2024*

- *Designed and programmed a narrative game featuring four subgames themed on four different mindful healing practices - chakra healing, tarot reading, Sedona method, and gratitude journaling*
- *Developed 7 storylines that converge to three endings, integrating emotional states and player choice as core mechanics*
- *Implemented a 22-cards tarot reading system with file parsing and deck shuffling algorithms• Authored three original interpretations for each of the 22 major tarot cards to create a cohesive spiritual narrative*
- *Engineered smooth input validation and transitions to deliver a meditative, reflective player experience*

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LEADERSHIP

University of Rochester, Audio Engineering Society **Rochester, NY**

Vice President *January 2024 – January 2025*

- *Coordinated and managed audio-related academic events and guest speaker sessions through the semester*
- *Coordinated and managed social events like study groups to encourage peer mentorship and knowledge-sharing, fostering an inclusive space for learning among students at various experience levels*

University of Rochester, No Jackets Required **Rochester, NY**

Music & Logistical Coordinator *August 2025 - Present*

- *Coordinated and managed over 20 musicians across 8 club events, ensuring smooth communication and performance flow.*
- *Created and arranged setlists for all performances, aligning musical themes with event themes.*
- *Scheduled and supervised weekly rehearsals, monitoring progress and maintaining performance quality.*
- *Supported annual large-scale showcases as a show technician, assisting with live sound, stage setup, and technical logistics*

University of Rochester, Freeflow **Rochester, NY**

Audio & Lighting Manager *January 2024 - June 2025*

Member *August 2025 - present*

- *Designed lighting cue sheet for performances based on the overall style of the song choices.*
- *Coordinated and organized workshops with guest teachers invited from New York City.*
- *Communicated with teachers to edit performance audio.*

EDUCATION

University of Rochester **Rochester, NY**

Bachelor of Science, Audio and Music Engineering *Anticipated May 2026*

- GPA: 3.61 out of 4.00

HOBBIES

- Rock climbing
- Band
- Dance
- Mindfulness routine
- Reading